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Christopher J. Elliott

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EXAMINER

HOUSTON, ELIZABETH

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.



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**BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES**

Application Number: 10/626,246
Filing Date: July 24, 2003
Appellant(s): ELLIOTT, CHRISTOPHER J.

David Burse
For Appellant

EXAMINER'S ANSWER

This is in response to the appeal brief filed 09/07/10 appealing from the Office action mailed 02/24/10.

(1) Real Party in Interest

The examiner has no comment on the statement, or lack of statement, identifying by name the real party in interest in the brief.

(2) Related Appeals and Interferences

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

(3) Status of Claims

The following is a list of claims that are rejected and pending in the application:

1, 2, 6-12, 24, 26-29

(4) Status of Amendments After Final

The examiner has no comment on the appellant's statement of the status of amendments after final rejection contained in the brief.

(5) Summary of Claimed Subject Matter

The examiner has no comment on the summary of claimed subject matter contained in the brief.

(6) Grounds of Rejection to be Reviewed on Appeal

The examiner has no comment on the appellant's statement of the grounds of rejection to be reviewed on appeal. Every ground of rejection set forth in the Office action from which the appeal is taken (as modified by any advisory actions) is being maintained by the examiner except for the grounds of rejection (if any) listed under the subheading "WITHDRAWN REJECTIONS." New grounds of rejection (if any) are provided under the subheading "NEW GROUNDS OF REJECTION."

(7) Claims Appendix

The examiner has no comment on the copy of the appealed claims contained in the Appendix to the appellant's brief.

(8) Evidence Relied Upon

5980514	KUPIECKI	11-1999
5382260	DORMANDY	01-1995
6171326	FERRERA	01-2001

(9) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

Claims 1, 2, 6-10, 24 and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kupiecki (USPN 5, 980, 514) in view of Dormandy JR (US 5,382,260).

Kupiecki discloses an embolic coil comprising an elongated core element (Fig 8, 204) formed of a shape memory material, nitinol, (Col 14, line 16) and movable between a straightened first configuration and a shape memorized second coiled configuration; and an elongated outer element (202), which in the first configuration, is wound around the elongated core element to form a primary coil shape that is substantially a cylindrical coil of the embolic coil and formed of platinum (Col 14, line 18). It is inherent that the shape memory material, of which the elongated core element is formed, is in an austenitic phase at an operation temperature of the embolic coil. The memorized shape of the elongated core is a coil or spiral (Fig. 8). The secondary coil (core element) has a secondary coil memorized shape, wherein, when heated to a temperature above a critical temperature of the shape memory material, the secondary coil causes the primary coil to follow the secondary coil shape (Col 14, lines 33-35).

Kupiecki does not disclose that the coil has fibers. However Dormandy discloses an embolic coil comprising polymeric fibers (22), that are looped through the turns of the coils (Figs 2-4; C3:L39-60) such that they are gripped between adjacent coil of the primary coil and held in place therebetween by friction (C3:L58-60, note there is

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necessarily friction between the coil and the fiber and that the looping is the sole source of holding it in place). It would have been obvious to one having ordinary skill in the art at the time of the invention to incorporate the fibers into the coil in order to increase the diameter of the coil and the surface area thereby increasing thrombogenicity. [Note that the outer primary coil (202) is only secured at the ends (C14:L7-12) allowing for the fibers to be wrapped and around and between adjacent coils.]

Claims 11, 12 and 27-29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kupiecki in view of Dormandy in view of Ferrera (USPN 6,171,326).

Kupiecki in view of Dormandy discloses all the limitations of the instant invention substantially as claimed as stated above except for the elongated outer element comprising a platinum wire co-wound with a shape memory material as in claim 12, fiber retention grooves formed on the core element as in claim 11 or applying cold work to the outer element as in claim 5.

With respect to claim 12, Ferrera discloses an embolic coil that incorporates the use of a multi-stranded micro-cable comprising both shape memory strands and radiopaque strands that can be platinum (Figs. 5 and 6 and Col 6, line 47 – Col 7, line 42). The advantage of using a multi-stranded cable is the relative flexibility and resistance to kinking compared to a single wire resulting in less trauma to surrounding tissue and ease of placement in small body cavities.

It would have been obvious to one having ordinary skill in the art at the time of the invention to incorporate the use of the multi-stranded micro cable into the embolic

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coil to result in a device where the elongated outer element comprises a platinum wire co-wound with a shape memory material wire in order to achieve the advantages stated above. Regarding claims 11 and 27-29, the resultant combination of Ferrera's multi-stranded cable with the base device provides fiber retention grooves as claimed (in that the circumferential and spiral grooves formed in between each strand in Fig 4, as well as the circumferential and spiral groove formed by the wrapped cover (56) in Figs. 10a and 10b will be capable of retaining the fibers of the modified device).

(10) Response to Argument

Appellant states that the combination of Kupiecki and Dormandy does not suggest a coil with fibers that are "frictionally gripped between adjacent coils of the primary coil" because the fibers taught by Dormandy are wrapped around the coil and held in place by the loops. However, if the fibers of Dormandy are "held in place by the loops" then they necessarily are held in place by frictional forces between the fibers and the coil. With no frictional force, the fibers would be free floating without being able to maintain their position on the coil. Thus they would be useless to the invention.

Dormandy states, "The loop serves as the sole means for retaining the group 21 of fibers 22 on the coil 12" (C3:L58-60). In other words there is no adhesive, welding, knots, etc. to maintain the position of the fibers relative to the coil. And so, the coils are necessarily maintained in place by friction.

Appellant states that Kupiecki "must be wound in a tight configuration over the inner core member as a loose winding is incapable of imparting the coiled shape". "The

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wire is secured to the outer body of the inner core member by welding the contacting ends thereof together, thus confirming that the wire is tightly wound." Examiner finds nothing in the specification to support appellant's claim that the coil must *necessarily* be *tightly wound*.

Appellant submits that because the coil of Kupiecki is tightly wound one would not be able to push the fibers through and around the coils as taught by Dormandy. However, as stated above there is nothing in support of appellant's allegation that the coil is necessarily tightly wound. Further it is not necessary to use the exact manufacturing techniques taught by Dormandy. The test for obviousness is not whether the features of a secondary reference may be bodily incorporated into the structure of the primary reference; nor is it that the claimed invention must be expressly suggested in any one or all of the references. Rather, the test is what the combined teachings of the references would have suggested to those of ordinary skill in the art. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981). It would be well within the skill to determine how to incorporate the wrapped fibers of Dormandy into the coil of Kupiecki. The outer coil of Kupiecki is only welded at the contact ends (C14:L26-42) or at several locations, leaving lengths of coil between the welds which are not fixedly attached to the inner core member. If the coil is not tightly wound (which is not required by Kupiecki), the fibers could be pushed between the coils at these locations. Further, the fibers can be wrapped around the coil during the process of wrapping the coil around the inner core before the portions are welded.

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With respect to claim 27, appellant submits that the Ferrera reference does not comprise a plurality of fiber retention grooves. It is true that Ferrera alone does not explicitly disclose fiber retention grooves since Ferrera does not disclose fibers. However Ferrera does disclose the groove structure. When this structure is combined with the modified device of Kupiecki and Dormandy, the grooves are capable of assisting in retaining the fibers that are wrapped around the coil and thus the grooves can be considered fiber retention grooves.

(11) Related Proceeding(s) Appendix

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

/Elizabeth Houston/

Examiner, Art Unit 3731

Conferees:

/Anhtuan T. Nguyen/

Supervisory Patent Examiner, Art Unit 3731

Michael Milano

/Michael J Milano/

Primary Examiner